July 2019

Water Supply Assessment
Merrill Commerce Center Specific Plan

for City of Ontario

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1. Introduction

1.1 INTRODUCTION

This document prepared for the City of Ontario is a Water Supply Assessment (WSA) intended to meet the requirements of Senate Bill (SB) 610. The water demand for the Merrill Commerce Center Specific Plan ("proposed project") is calculated and the adequacy of water supplies to meet the proposed project is evaluated.

SB 610 established the primary legal standards for assessing the sufficiency of water supplies for new development projects. These statutes require as part of the environmental review conducted for a qualifying project pursuant to the California Environmental Quality Act (CEQA), the public water supplier or land use agency – in this case the City of Ontario – must prepare a "water supply assessment" of the reliability of water supplies for the project, considering normal, single dry, and multiple dry years over a 20-year horizon. The basic requirement is that a WSA must "include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the water system's existing and planned future uses, including agricultural and manufacturing uses."[1]

References used in preparing this document include the following:

- City of Ontario, 2016. *2015 Urban Water Management Plan (UWMP)*. Prepared by Ontario Municipal Utilities Company.
- City of Ontario, 2012. *Water Master Plan*. Prepared by AKM Consulting Engineers.
- Chino Basin Desalter Authority, 2016. *2015 Urban Water Management Plan*. Prepared by Karen E. Johnson, Water Resources Planning.
- Inland Empire Utilities Agency, 2016. *2015 Urban Water Management Plan*. Prepared by Arcadis.
- San Antonio Water Company, 2016. *2015 Urban Water Management Plan*. Prepared by Civiltec Engineering Inc.

1.2 SITE LOCATION AND PROJECT DESCRIPTION

The project site is located within Ontario Ranch (formerly known as New Model Colony, NMC) in the City of Ontario. The project site covers 376.3 acres, located along Merrill Avenue, between Grove Avenue and Carpenter Avenue. Eucalyptus Avenue forms the northerly boundary of the Specific Plan area. Regional

[1] California Water Code Section 10910(c)(3).

location and local vicinity maps are provided in Figure 1, *Regional Location Map* and Figure 2, *Local Area Map*, respectively.

The project site currently contains dairy farm with interior unpaved roads, cattle stockades, support equipment for cattle and dairy farming, bio-retention basins located at the southern boundary, a trucking operation on the eastern portion, and appurtenant residences at various locations within the project site.

The Merrill Commerce Center Specific Plan proposes development and operation of up to 7,014,000 square feet (SF) of high-cube fulfillment center warehouse uses and up to 1,441,000 square feet of business park uses. The Specific Plan Land Use Plan Concept assigns land uses within the project site as summarized in Table 1.

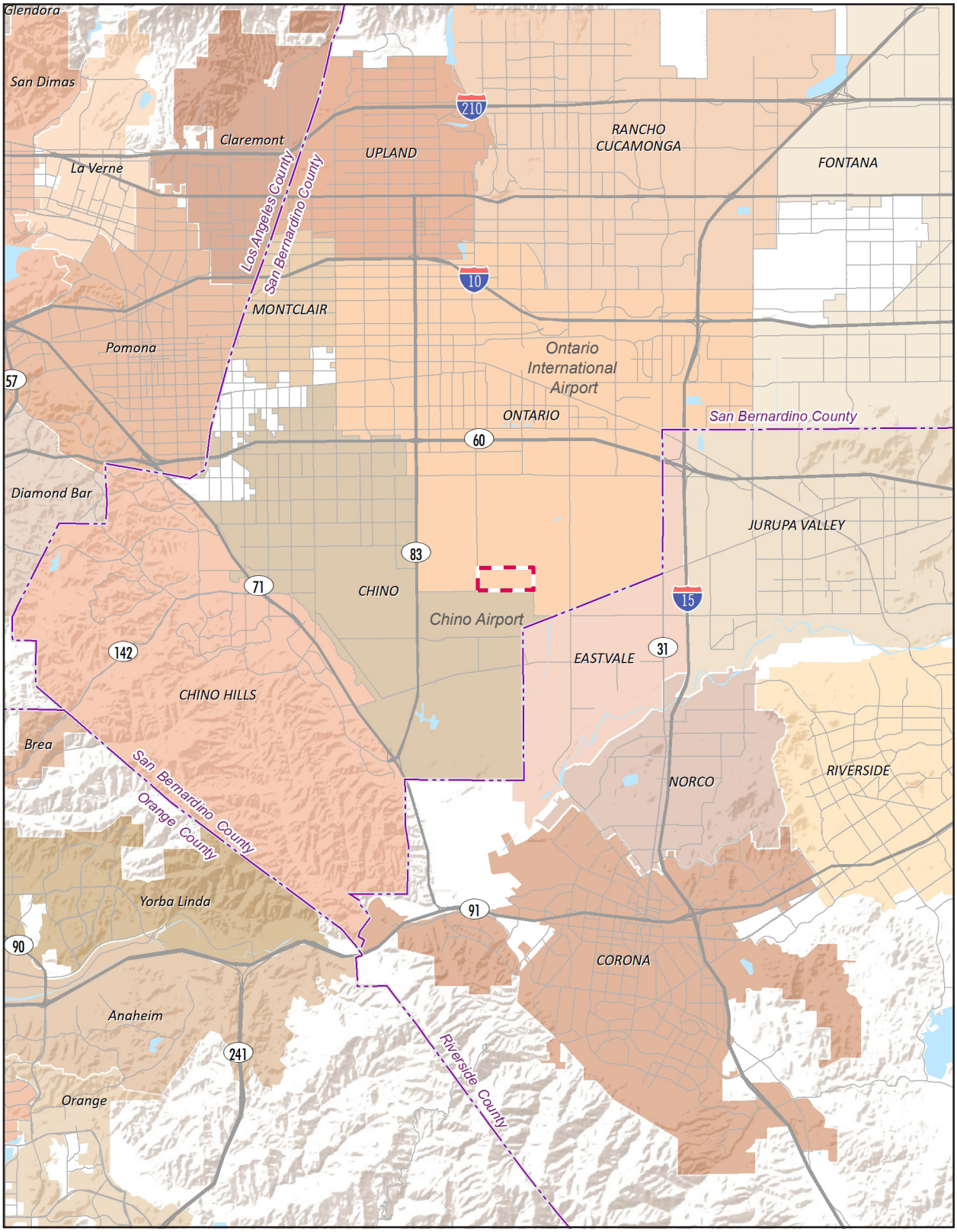
Table 1 – Proposed Project Land Use

Land Use	Building Area (SF)	Site Area (ac)	Land Designation[1]
High-Cube Fulfillment Center Warehouses	7,014,000	292.8	Industrial
Business Park	1,441,000	55.1	Business Park
Right-of-Way Dedications	N/A	28.4	Right-of-Way Dedications
Total	**8,455,000**	**376.3**	

[1] Land designations per the City of Ontario's latest general plan document entitled The Ontario Plan (2010).

The proposed project is anticipated to be implemented in 3 Phases – "A," "B," and "C." Phase A is anticipated to be completed by 2022, Phase B by 2025, and Phase C by 2026. Project phasing would ultimately respond to market demands and would be contingent on the availability of supporting infrastructure.

Figure 1 - Regional Location Map



Project Boundary

Note: Unincorporated county areas are shown in white.

Source: ESRI, 2019

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Scale (Miles)

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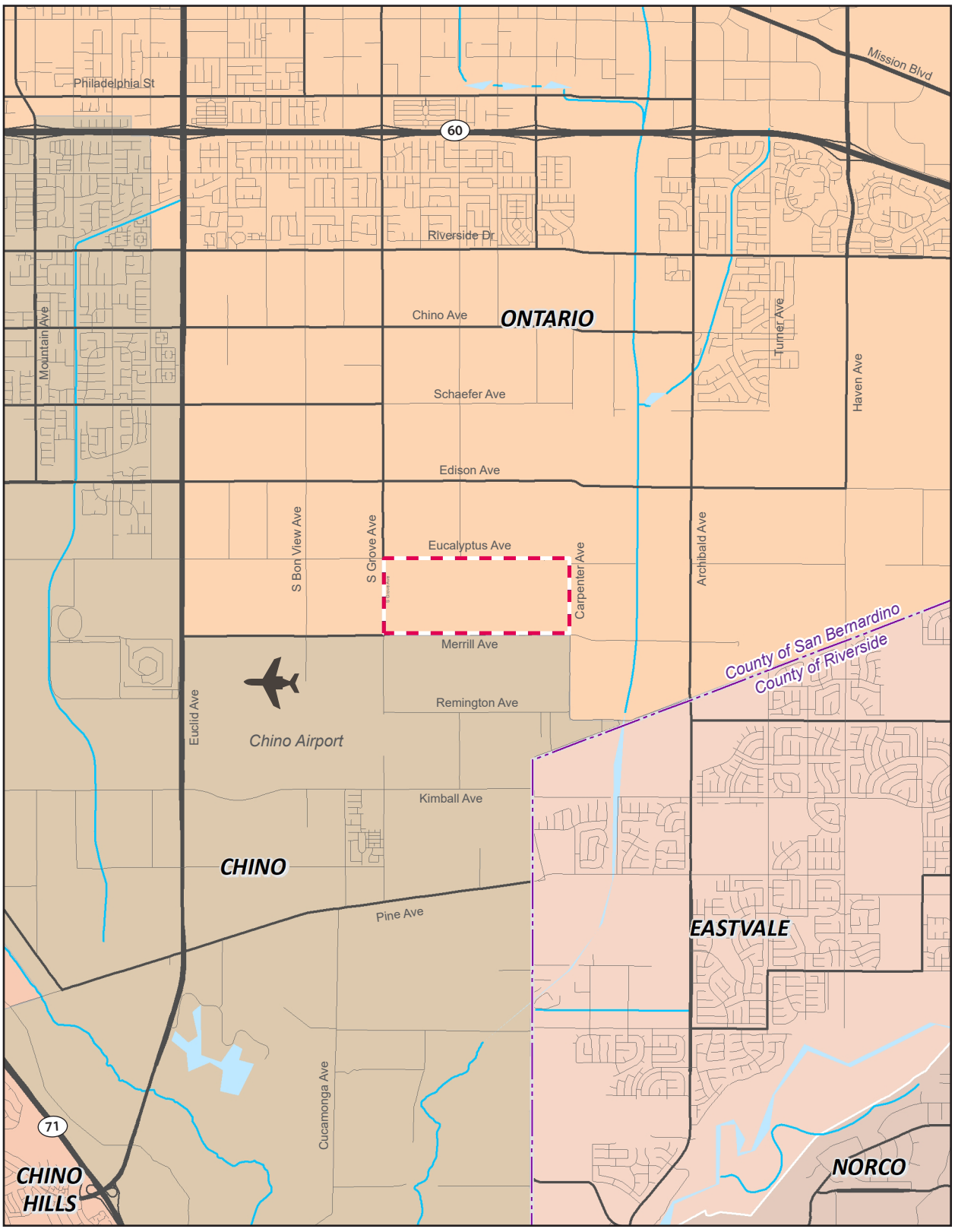
Figure 2 - Local Area Map



Project Boundary

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Scale (Feet)

Source: ESRI, 2019

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2. Water Supply Assessment

2.1 WATER PURVEYOR

The Ontario Municipal Utilities Company (OMUC) provides water service to residents, businesses, and other users in the City of Ontario, including the project site. Two small areas in the north central and northeastern sections of the City are served by the Cucamonga Valley Water District (CVWD). As of 2015, OMUC provided water to a population of approximately 168,777 people. The primary source of water is groundwater from Chino Groundwater Basin (Chino Basin). Other water supplies include treated groundwater from the Chino Basin Desalter Authority (CDA), recycled water from Inland Empire Utilities Agency (IEUA), imported water from the Water Facilities Authority (WFA), and purchased water from the San Antonio Water Company (SAWCo).

The City currently owns and operates:

- 18 active wells
- Two wells on standby
- Three of the active wells (Wells 41, 44, and 52) currently undergo treatment at two separate treatment plants

As of 2015, there were 33,720 water meters throughout the City.

Total potable and recycled water demands within the OMUC service area averaged 43,663 acre-feet per year (AFY) between 2005 and 2015. Potable water demands averaged 38,470 AFY and recycled water demands averaged 5,193 AFY (including agricultural demands), between 2005 and 2015. Despite growth within the City between 2005 and 2015, potable demands have steadily decreased in the last 10 years primarily due to increasing recycled water use and conservation efforts. In 2015, the City's total demand was 37,151 AFY. Potable water demands were 29,943 AFY and recycled water demands were 7,208 AFY (including agricultural demands). The total demands in the year 2040 are projected to be 73,640 AFY. Potable water demands are projected to be 57,093 AFY and recycled water demands are projected to be 16,547 AFY (including agricultural demands).

The passage of SB X7-7 (also known as the Water Conservation Act of 2009) resulted in increased efforts to reduce potable water usage by requiring all California urban water suppliers to achieve a 20% reduction in demands (from a historical baseline) by 2020. Using a 10-year base period of 1995 to 2004, the City's baseline

water usage is 245 gallons per capita per day (GPCD). The City's interim 2015 water use target is 220 GPCD, and the 2020 target is 196 GPCD.[2]

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, single dry, and multiple dry years. As discussed in the City's Urban Water Management Plan (UWMP), the City is capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2015 and 2040.

2.2 LEGAL REQUIREMENTS

SB 610 established the primary legal standards for assessing the sufficiency of water supplies for new development projects. Affected land developments are those that meet certain size thresholds. The proposed projects meets the threshold for a proposed industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area. The proposed project also meets the threshold for a proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.Therefore, the proposed project, as described in Section 1.2, meets the criteria for preparation of a WSA.

The basic requirement is that a WSA must "include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the water system's existing and planned future uses, including agricultural and manufacturing uses." If the water demand for a proposed project is accounted for in an adopted UWMP, as is the case here, the WSA preparer may incorporate that information into the WSA.

The WSA also requires additional analysis if any portion of the water purveyor's water supplies include groundwater. A description of any groundwater basin or basins from which the proposed project will be supplied in addition to a detailed description and analysis of the amount and location of groundwater pumped by the public water system for the past five years should be provided. The WSA should also include an analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.

Upon adoption, the WSA is incorporated into the CEQA document being prepared for the project, and the lead agency must determine, based on the entire record, whether projected water supplies will be sufficient to satisfy demands for the project, in addition to existing and future uses.[3]

2.3 WATER DEMAND ANALYSIS

This section evaluates whether the proposed project was included in the projection of future water demands for the City of Ontario, as described in the 2015 UWMP. As per Section 10910 (c) (2) of the California Water Code:

[2] City of Ontario, 2016. 2015 Urban Water Management Plan. Prepared by Ontario Municipal Utilities Company.
[3] California Water Code Section 10910 (b) and (c).

"if the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g)."

2.3.1 City of Ontario Water Demands

The primary source of water for the proposed project would be existing water supplies used by the City to provide service to its customers. This section analyzes the water demands of existing and planned future City customers.

Current and projected potable and recycled water demands by customer class are presented in Tables 2 and 3. The City's total 2015 demand was 37,151 AFY. Potable water demand was 29,943 AFY and recycled water demand was 7,208 AFY (including agricultural demands). The projected 2040 potable water demand is 57,093 AFY and recycled water demand (including agricultural demands) is 16,547 AFY for a total of 73,640 AFY.

Table 2 – Current and Projected Potable Water Demands for the City of Ontario (AFY)

Use Type	2015	2020	2025	2030	2035	2040
Single Family	10,941	11,488	12,063	13,271	14,864	16,557
Multi-Family	4,839	6,050	7,563	9,832	13,273	17,699
Commercial	6,584	7,271	7,635	8,398	9,406	10,277
Industrial	1,471	1,839	2,298	2,988	3,884	5,138
Landscape	4,564	4,792	5,032	5,535	6,365	7,422
Other	1,338	-	-	-	-	-
Sales/Transfers/Exchanges to other agencies	206	-	-	-	-	-
Total	29,943	31,440	34,591	40,024	47,792	57,093

AFY = Acre-feet/year
Source: City of Ontario 2015 UWMP, 2016.

Table 3 – Current and Projected Recycled Water Demands for the City of Ontario (AFY)

	2015	2020	2025	2030	2035	2040
Recycled Water Demand	7,208	7,929	9,118	10,942	13,677	16,574

AFY = Acre-feet/year
Source: City of Ontario 2015 UWMP, 2016.

2.3.2 Proposed Project Water Demand

The proposed project consists of an approximately 376.3-acre development within the boundaries of the Merrill Commerce Center Specific Plan. The proposed project plans for new warehousing and office commercial uses. Buildout of the Specific Plan would generate 1,441,000 SF of office commercial space, and 7,014,000 SF of industrial use. The proposed development would connect to the City's water main for domestic water use. Recycled water would be used for landscape irrigation.

The project site is currently agricultural land use, including dairy operations and field crops. The site is not connected to the City's water supply and uses groundwater for irrigation of crops and other agricultural-related uses. The use of this water supply would cease upon implementation of the proposed project. Any on-site groundwater wells would be abandoned in accordance with California Department of Water Resources (DWR) standards.

Water use for the proposed project was calculated using domestic water demand rates and recycled water irrigation demand rates, as specified in the UWMP. Table 4 shows the total water demand estimate for the proposed development.

Table 4 – Water Demand Estimate for the Proposed Development

Land Use	Acres	Domestic Water Demand Rate (gpd/ac) [a]	Total Domestic Water Usage (gal/day)	Recycled Water Demand Rate (gpd/ac) [b]	Total Recycled Water Usage (gal/day)
Domestic Water					
Industrial	292.8	1,400	409,920	893	261,470
Business Park	55.1	1,800	99,180	1,339	73,779
Right-of-Way Dedication	28.4	--	--	1,339	38,028
Total	**376.3**	**-**	**509,100**	**-**	**373,277**

Source: City of Ontario 2015 UWMP, 2016.
[a] Table 2 of the Ultimate Citywide Water Demand Estimate Technical Memorandum (Appendix B of the UWMP) was used to establish the domestic water demand rate. The "Industrial (w/ RW)" rate and "Business Park (w/ RW)" rates were chosen.
[b] Table 5 of the Ultimate Citywide Water Demand Estimate Technical Memorandum (Appendix B of the UWMP) was used to establish the recycled water demand rate. The "Industrial" rate of 1 AFY/ac,"Business Park" rate of 1.5 AFY/ac, and "Right-of-Way" rate of 1.5 AFY/ac were chosen.
gpd/ac = Gallons per day per acre
NA = Not Applicable

As shown in Table 4, the total domestic water demand within the Merrill Commerce Center Specific Plan area is estimated to be 509,100 gal/day (570.3 AFY). The total recycled water demand is estimated to be 373,277 gal/day (418 AFY). The total water demand would be 882,377 gal/day or 988 AFY.

2.3.3 Proposed Project with Respect to 2015 Urban Water Management Plan

In order to evaluate water supply reliability, California statutes require the consideration of water supplies and demands in three types of water conditions: normal, single dry, and multiple dry water years.[4] The 2015 UWMP indicates that the City is capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2020 and 2040.

The 2015 UWMP projected water demands are based on future land uses as specified in the City's latest 2010 General Plan. The 2010 General Plan designates the project site as consisting of general commercial, office commercial, and business park. Projected water demand for the project site is included in the UWMP 2015 projections but is based on the 2010 General Plan land use designations. Based on the projected future land use for the project site in the UWMP, the water demand was estimated, as shown in Table 5.

[4] Department of Water Resources, 2005. *California Water Plan, Bulletin 160-05, Volume III* ("Each district has different assumptions and policies that guide their planning").

Table 5 – Water Demand Estimate for the Project Site Based on Projected Future Land Use in 2015 UWMP

Land Use	Acres [a]	Domestic Water Demand Rate (gpd/ac) [b]	Total Domestic Water Usage (gal/day)	Recycled Water Demand Rate (gpd/ac) [c]	Total Recycled Water Usage (gal/day)
Domestic Water					
General Commercial	19.5	1,800	35,100	1,339	26,111
Business Park	311.4	1,800	560,520	1,339	416,965
Office Commercial	45.4	2,500	113,500	1,339	60,791
Total	**376.3**	**-**	**709,120**	**-**	**503,867**

Source: City of Ontario 2015 UWMP, 2016. Applied Planning, 2019.
[a] Acreages estimated from Figure 3-5 of the City's UWMP.
[b] Table 2 of the Ultimate Citywide Water Demand Estimate Technical Memorandum (Appendix B of the UWMP) was used to establish the domestic water demand rate. The "General Commercial (w/ RW)", "Business Park (w/RW)" and "Office Commercial (w/ RW)" rates were chosen.
[c] Table 5 of the Ultimate Citywide Water Demand Estimate Technical Memorandum (Appendix B of the UWMP) was used to establish the recycled water demand rate. The "Business Park", "Office Commercial, and "General Commercial" rate of 1.5 AFY/ac were chosen.
gpd/ac = Gallons per day per acre

As shown in Table 5, the total domestic water demand within the site area as depicted in the 2015 UWMP is estimated to be 709,120 gal/day (794 AFY). The total recycled water demand is estimated to be 503,867 gal/day (564 AFY). Therefore, the total water demand would be 1,212,987 gal/day or 1359 AFY.

The water demand for the proposed project is approximately 73 percent of the water demand for the development project that was accounted for in the 2015 UWMP. Therefore, implementation of the proposed project will not obstruct the City's ability to meet water demands of its customers in normal, single dry, and multiple dry years.

2.4 WATER SUPPLY ANALYSIS

This section identifies the sources of water used by the City of Ontario and evaluates the water supplies that could be used by the City and the proposed project during normal, single-dry, and multiple-dry years through the year 2040.

Water sources used by the City include groundwater from Chino Groundwater Basin (Chino Basin), treated groundwater from the Chino Basin Desalter Authority (CDA), recycled water from Inland Empire Utilities Agency (IEUA), imported water from the Water Facilities Authority (WFA), and purchased water from the San Antonio Water Company (SAWCo).

The City of Ontario owns and operates 20 groundwater wells within the Chino Basin, of which 18 wells are currently active and two are on standby. Groundwater from the Chino Basin is used by the City of Ontario either directly by pumping into its distribution system or by treating the groundwater (Wells 41, 44 and 52) at one of its two plants and then pumping the treated groundwater into the City of Ontario's distribution system. The ultimate capacity of Ontario's existing and future wells is projected to be 105.8 million gallons per day

(mgd) or 132,219 AFY.[5] Additional information on the City's groundwater resources and groundwater rights is provided in Section 2.5.

In addition to its well production, the City of Ontario also purchases treated Chino Basin groundwater from the CDA. The CDA was formed in 2002 as a Joint Powers Authority consisting of Inland Empire Utilities Agency; Jurupa Community Services District; Cities of Chino, Chino Hills, Norco and Ontario, and Santa Ana River Water Company. Western Municipal Water District joined in 2010.

As part of the Chino Basin Watermaster requirements in the Optimum Basin Management Program (OBMP), the member agencies of the CDA are required to extract 40,000 AFY of groundwater from the southern portion of the Basin, treat it to potable water standards, and deliver it to the member agencies. The CDA currently owns and operates two desalters (Chino I and Chino II Desalters) that consist of groundwater extraction wells connected to pumps and pipelines that direct water to advanced treatment facilities. The final product is a high quality drinking water, which is sold to member agencies through "take or pay" contracts. The City has 1,500 AFY capacity rights in the Chino I Desalter and 3,500 AFY capacity rights in the existing Chino II Desalter. When the current expansion of the Chino II Desalter is completed, the City's total deliveries will increase to 8,533 AFY.[6]

Recycled water is provided to the City of Ontario by IEUA, which owns and operate four regional water recycling plants that produce disinfected and filtered tertiary treated recycled water in compliance with California Title 22 regulations. IEUA provides recycled water to Ontario and other local agencies through a distribution system consisting of pipelines, booster pump stations, pressure regulating station, and reservoirs.[7]

The City has been obtaining recycled water from IEUA since 1972. Currently, recycled water is used in the City for agricultural irrigation, landscape irrigation, golf course irrigation, and industrial uses. Based on the City's current Recycled Water Master Plan and the 2015 UWMP, the City has enough recycled water rights to meet future recycled water demands. In 2015, there were 12,131 AF of recycled water available to the City and 7,208 AF of recycled water were used.

The City also obtains treated imported water from the WFA, which is a wholesale water supplier to the cities of Chino, Chino Hills, Ontario, Upland, and the Monte Vista Water District.[8] The WFA purchases imported water from IEUA, which in turn purchases untreated water from the Metropolitan Water District (MWD). The MWD obtains its water from the State Water Project (SWP) and has projected 100% water supply reliability over the next 20 years, as per its 2015 UWMP.[9] The WFA obtains the raw water from a connection to MWD's Rialto Feeder Pipeline, which starts at MWD's Silverwood Lake Reservoir in the San Bernardino Mountains. The City owns 31.4 percent of the plant capacity (25.4 mgd, 28,500 AFY). The maximum capacity available to

[5] City of Ontario, 2012. Water Master Plan. Prepared by AKM Consulting Engineers.
[6] City of Ontario, 2016. 2015 Urban Water Management Plan. Prepared by Ontario Municipal Utilities Company.
[7] Inland Empire Utilities Agency, 2016. 2015 Urban Water Management Plan. Prepared by Arcadis.
[8] Inland Empire Utilities Agency, 2016. 2015 Urban Water Management Plan. Prepared by Arcadis.
[9] Metropolitan Water District of Southern California, 2016. 2015 Urban Water Management Plan.

the City is 19,924 AFY, which equals the total capacity of 28,000 AFY less the Dry Year Yield (DYY) shift obligation of 8,076 AFY.[10].

SAWCo leases groundwater rights to the Cities of Fontana, Ontario, Chino and Upland, and the Cucamonga Valley Water District, the Monte Vista Water District, the Jurupa Community Services Water District and Three Valleys Municipal Water District.[11] The City of Ontario owns 295 shares of the SAWCo. In the past, the City received its water from SAWCo by a stored groundwater transfer. However, in 2015, SAWCo made a connection to the WFA and is now able to deliver water to the City through that connection. SAWCo water supplies are a mix of surface water from San Antonio Creek, groundwater from the San Antonio Tunnel, and three groundwater basins: Chino Basin, Cucamonga Basin, and Six Basins.[12]

Actual water supplies provided to the City for the year 2015 are summarized in Table 6.

Table 6– Water Supply Sources for the City of Ontario in 2015

Water Supplier	Water Source	Amount (AFY)
City of Ontario	Groundwater	19,544
Chino Basin Desalter Authority (CDA)	Purchased/Imported Water	3,543
Water Facilities Authority (WFA)	Purchased/Imported Water	6,413
San Antonio Water Company (SAWCo)	Purchased/Imported Water	443
Inland Empire Utilities Authority (IEUA)	Recycled Water	3,859
IEUA – Agriculture Deliveries	Recycled Water	3,349
Total		**37,151**

Source: City of Ontario, 2016. 2015 Urban Water Management Plan
AFY = Acre-feet per year

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. The City depends on a combination of imported and local supplies to meet its water demands and has taken numerous steps to ensure that it has adequate supplies. Water supplies available to the City are projected to meet full-service demands. The UWMP states that the City will be able to meet demand with projected supplies between 2020 and 2040 during normal years, single dry years, and multiple dry years (see Table 7).[13]

Table 7 – Normal, Single Dry, and Multiple Dry Year Supply and Demand (AFY)

	2020	2025	2030	2035	2040
Normal Year					
Supply Totals	39,369	43,710	50,966	61,470	73,640
Demand Totals	39,369	43,710	50,966	61,470	73,640
Difference	0	0	0	0	0
Single Dry Year					
Supply Totals	39,369	43,710	50,966	61,470	73,640
Demand Totals	35,432	39,339	45,869	55,323	66,276

[10] City of Ontario, 2016. 2015 Urban Water Management Plan. Prepared by Ontario Municipal Utilities Company.
[11] San Antonio Water Company, 2016. 2015 Urban Water Management Plan. Prepared by Civiltec Engineering Inc.
[12] San Antonio Water Company, 2016. 2015 Urban Water Management Plan. Prepared by Civiltec Engineering Inc.
[13] City of Ontario, 2016. 2015 Urban Water Management Plan. Prepared by Ontario Municipal Utilities Company.

Table 7 – Normal, Single Dry, and Multiple Dry Year Supply and Demand (AFY)

		2020	2025	2030	2035	2040
Difference		3,937	4,371	5,097	6,147	7,364
Multiple Dry Year						
First Year	Supply Totals	39,369	43,710	50,966	61,470	73,640
	Demand Totals	35,432	39,339	45,869	55,323	66,276
	Difference	3,937	4,371	5,097	6,147	7,364
Second Year	Supply Totals	39,369	43,710	50,966	61,470	73,640
	Demand Totals	33,464	37,154	43,321	52,250	62,594
	Difference	5,905	6,557	7,645	9,221	11,046
Third Year	Supply Totals	39,369	43,710	50,966	61,470	73,640
	Demand Totals	31,495	34,968	40,773	49,176	58,912
	Difference	7,874	8,742	10,193	12,294	14,728

Source: City of Ontario 2015 UWMP, 2016.

The City will increase its total water supply from 37,151 AF of water delivered in 2015, to 73,640 AFY in 2040 The increased water supply will come from full utilization of the City's groundwater rights in the Chino Basin allowed under the Judgment (including increased groundwater recharge of stormwater and recycled water), and continued expansion of recycled water use and expansion of desalter water. The increase in imported water is assumed to be available in wet and normal years. With the ability for the City to store water in the Chino Basin, in its local and supplemental storage accounts as well as the DYY Program storage account, the City has the capability and water supply available to reduce imported water deliveries in dry years and increase groundwater production to meet future demands.[14]

2.5 GROUNDWATER ANALYSIS

Since most of the potable water supplied by the City of Ontario comes from groundwater, SB610 requires a groundwater analysis to be included as part of the WSA. The Water Code requires that the WSA include:

- Groundwater information from the 2015 UWMP
- Groundwater basin description: Including the legal rights to pump
- Historic Use of Groundwater: from the 2015 UWMP
- Projected Use of Groundwater
- Sufficiency of Groundwater from Chino Basin: The City of Ontario's legal right to pump water in an amount necessary to meet all of its demands has been adjudicated and will ensure the long-term reliability of the groundwater source as the safe yield of the aquifer has been determined. The construction of Wells 45, 46, and 47, as part of the DYY Storage Program, increases the City's groundwater pumping capacity to meet peak demands. The City also has stored water in the Chino Basin and participates in an ongoing

[14] City of Ontario, 2016. 2015 Urban Water Management Plan. Prepared by Ontario Municipal Utilities Company.

groundwater recharge program, using stormwater, dry-weather runoff, and recycled water, that ensures the safe yield of the Chino Basin is not exceeded. The ongoing expansion of the groundwater desalter program and recycled water program will reduce the City's dependence on groundwater pumping. In addition, the City participates in water conservation efforts through the California Urban Water Conservation Council (CUWCC), adopts ordinances pertaining to water shortage contingency planning, conservation pricing, and various public outreach programs to encourage its customers to reduce their water consumption.

2.5.1 Groundwater Information from the 2015 UWMP

The 2015 UWMP adopted by the City in June 2016 contains a description of the Chino Groundwater Basin, the City's current and projected water supplies and demands, the reliability of the water supply, water shortage plans, the Optimum Basin Management Plan, and the adjudication judgment administered by the Chino Basin Watermaster. In addition, Appendix B of the UWMP prepared by AKM explains the methods and calculations by which the future water demand of the City were estimated, based on the land use designations in the General Plan.

2.5.1 Groundwater Basin Description

The City of Ontario obtains its groundwater from the Chino Groundwater Basin. The Chino Basin encompasses about 235 square miles of the upper Santa Ana River watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. The Chino Basin has approximately 6 million-acre feet of water in storage and an estimated 1 million acre-feet of storage capacity. The Chino Basin is divided into five management zones, based on similar hydrologic conditions, as shown in Figure 3, *Chino Groundwater Basin Management Zones*. The City of Ontario is located approximately in the center of the Chino Basin.

Groundwater quality in Chino Basin is generally good with better quality in the northern portion of the basin where recharge occurs. Salinity (TDS) and nitrate-nitrogen concentrations are higher in the southern portion of the basin. The Chino Basin has been extensively studied by the Chino Basin Watermaster. Reports are available at this website: http://www.cbwm.org/.

The Chino Basin Watermaster began development of the Optimum Basin Management Program (OBMP) in 1998 and completed it in 2000. The purpose of the program is to address both water quality and water supply considerations. The southern portion of the Chino Basin requires brackish groundwater treatment to control the outflow of salts and nitrates into the Santa Ana River. As such, one of the main benefits of the CDA is to remove salts and nitrates to clean up the Chino Basin. CDA operates 22 groundwater extraction wells that prevent brackish groundwater from flowing into the Santa Ana River.

The OBMP and its implementation agreement, the Peace Agreement, was approved by the Court in October 2000. One of the stipulations of the OBMP requires member agencies to extract approximately 40,000 AFY of groundwater from the southern portion of the Chino Basin, treat it to potable water standards, and then deliver it to the member agencies. When the Chino II Desalter expansion is complete, CDA is expected to meet this requirement. The City of Ontario purchased 3,543 AF from CDA in 2005, which is approximately 10 percent of the City's total supply. Upon completion of the Chino II Desalter expansion, the City's capacity rights will be 8,533 AFY.

2.5.1.1 LEGAL RIGHT TO PUMP FROM THE CHINO BASIN

Water rights to the Chino Basin were adjudicated in 1978 by the Superior Court of the State of California for San Bernardino County. Since that time, the Chino Basin has been sustainably managed, as required by the Judgment, under the direction of the court-appointed Watermaster. The original Watermaster was the Chino Basin Municipal Water District (now IEUA). Since 1998, the Watermaster has been the Chino Basin Watermaster.

Multiple cities and water purveyors pump groundwater from the Chino Basin for all or part of their municipal and industrial water supplies. Agricultural users also pump groundwater from the Basin. The safe yield of the Chino Basin is 135,000 AFY as of 2011. The safe yield quantity of 135,000 AFY is allocated among three pools of right holders as follows:

- Overlying agricultural pool (dairymen, farmers, and the State of California) 82,800 AFY
- Overlying non-agricultural pool (businesses and industries) 7,366 AFY
- Appropriative pool (local cities, public water districts, and private water companies) 44,834 AFY

The Judgment states that all Chino Basin users can pump a sufficient quantity of water from the Basin to meet their requirements. If pumping by a party exceeds its share of the safe yield, assessments are levied by the Chino Basin Watermaster to replace overproduction. The Judgment also recognizes that there is a substantial amount of available unused groundwater storage capacity in the Chino Basin that can be used for storage and the conjunctive use of supplemental and basin waters.[15] The Chino Basin Watermaster has the authority to reallocate shares of unallocated safe yield water on an annual basis, as per the latest 2019 Watermaster Resolution No. 2019-03. (add source – Watermaster Resolution 2019-03). The Watermaster publishes an annual report that summarizes the status and management of the Chino Basin. A copy of the Chino Basin Judgment and latest Watermaster Annual Report can be found at www.cbwm.org.

The City of Ontario is a member of both the overlying non-agricultural pool and the appropriative pool and is therefore subject to the regulations imposed by the Chino Basin Watermaster. Per the Judgment, the City of Ontario has water rights of 20.742% of the safe yield of the appropriative pool (i.e., approximately 9,229 AFY). In addition, as of 2018 the City holds groundwater rights of 2,966 AFY from the overlying non-agricultural pool.

The City of Ontario also participates in the Dry Year Yield Storage Program (DYY Program), which is a cooperative conjunctive use program involving Metropolitan Water District of Southern California (MWD), IEUA, Chino Basin Watermaster, Three Valleys Municipal Water District (TVMWD), and some of the Chino Basin groundwater producers. Under the DYY Program, MWD is allowed to store up to 100,000 AF of water in the Chino Basin when surplus water is available and the Chino Basin groundwater producers can extract 33,000 AFY for three years in dry, drought, or emergency periods. The City authorized execution of an agreement with IEUA to participate in the DYY program in 2003. Participation obligates the City to reduce its

[15] Wildermuth Environmental, Inc. (WEI), 2018. 2018 Recharge Master Plan. Prepared for the Chino Basin Watermaster and the Inland Empire Utilities Agency. Dated September 2018.

use of imported water compared to a baseline by a fixed amount, known as the "shift obligation." The City's shift obligation is 8,076 AFY. During years when MWD calls for extraction, the City's WFA purchases would be reduced by up to 8,076 AFY compared to the previous year. Because Jurupa Community Services District (JCSD) does not have an imported water connection, it has entered into an agreement with the City for meeting its shift obligation. Under this agreement, JCSD conveys groundwater to the City in an amount equal to its shift obligation. The current shift obligation is 2,000 AFY. This program allows the City to be less reliant upon imported water supplies and the additional groundwater capacity allows the City to increase the percentage of groundwater supply used to meet peak demands.[16]

In addition to the appropriative pool and overlying non-agricultural pool water rights, as well as the contract obligations through the DYY Program, the following is a summary of other groundwater rights for Chino Basin:

- **LAND USE CONVERSIONS**

  As of 2015, the City has rights to 2,137 AFY from the Chino Basin due to conversions from agricultural to non-agricultural land uses. This amount is expected to increase to 16,602 AFY as agricultural land uses are converted in the future. (However, annual adjustments may be made to the rights obtained through land use conversions.[17])

- **ANNUAL EARLY TRANSFERS**

  The Watermaster can approve an "Early Transfer" of unused agricultural pool water to the appropriative pool. The Early Transfer water is annually allocated among the appropriative pool members in accordance with their pro-rata share of the initial safe yield.[18] For the 2014-2015 fiscal year, the Early Transfer of water for the City was 4,669 AF. The total Agricultural Pool Reallocation to the City of Ontario for Fiscal Year 2014-2015 was 7,843 AF.

- **INCREASED GROUNDWATER RECHARGE**

  The City is entitled to water rights due to increased groundwater recharge with stormwater and recycled water credits in accordance with the OBMP. Stormwater recharge credit is assigned based on operating safe yield percentage. Recycled water recharge credit is assigned based on the wastewater contribution percentage. Based on an estimated total recharge of 35,000 AFY (20,000 AFY of recycled water and 15,000 AFY of stormwater) in 2035, the City of Ontario would be entitled to approximately 9,600 AFY in the future.

- **GROUNDWATER FROM SAN ANTONIO WATER COMPANY**

  The City owns 295 shares of the San Antonio Water Company (SAWCo), which provides 765 AFY to the City. SAWCo supplies a mixture of water from San Antonio Creek, groundwater from the San Antonio

[16] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.
[17] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.
[18] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.

Tunnel, and three groundwater basins: Chino Basin, Cucamonga Basin, and Six Basins. In the past, the City received its water from SAWCo by a stored groundwater transfer; however, in 2015, SAWCo made a connection to the WFA and is now able to deliver water to the City.[19]

- **FONTANA RECYCLED WATER RIGHTS**

The City also has a long-term contract to purchase up to 3,000 AFY of recharged recycled water rights from the City of Fontana, which does not operate its own water system.[20]

- **CITY GROUNDWATER STORAGE**

The City has rights to store water in the Chino Basin (appropriative and overlying non-agricultural) and has been increasing its storage in recent years. The City holds water in both an excess carry over accounts and supplemental accounts. Excess carry over storage accounts hold un-pumped operating safe yield groundwater rights. Supplemental accounts hold both imported water and recycled water that has been recharged into the Chino Basin. As of 2015, the City has a total of 76,179 AF in storage. This consists of 34,820 AF in excess carry over storage accounts and 39,359 AF in supplemental accounts. As of 2015, there is enough water in the City's storage accounts to meet more than two years of total demands, should other water supply sources be unavailable. Based on the City's projected increase in additional local supplies (desalter water and recycled water), the City's groundwater storage accounts are projected to continue to grow at a rate of 2,000 AFY to 5,000 AFY, further increasing the City's local resource reliability and reducing dependence on imported water.[21]

The various groundwater rights held by the City of Ontario are summarized in Table 8.

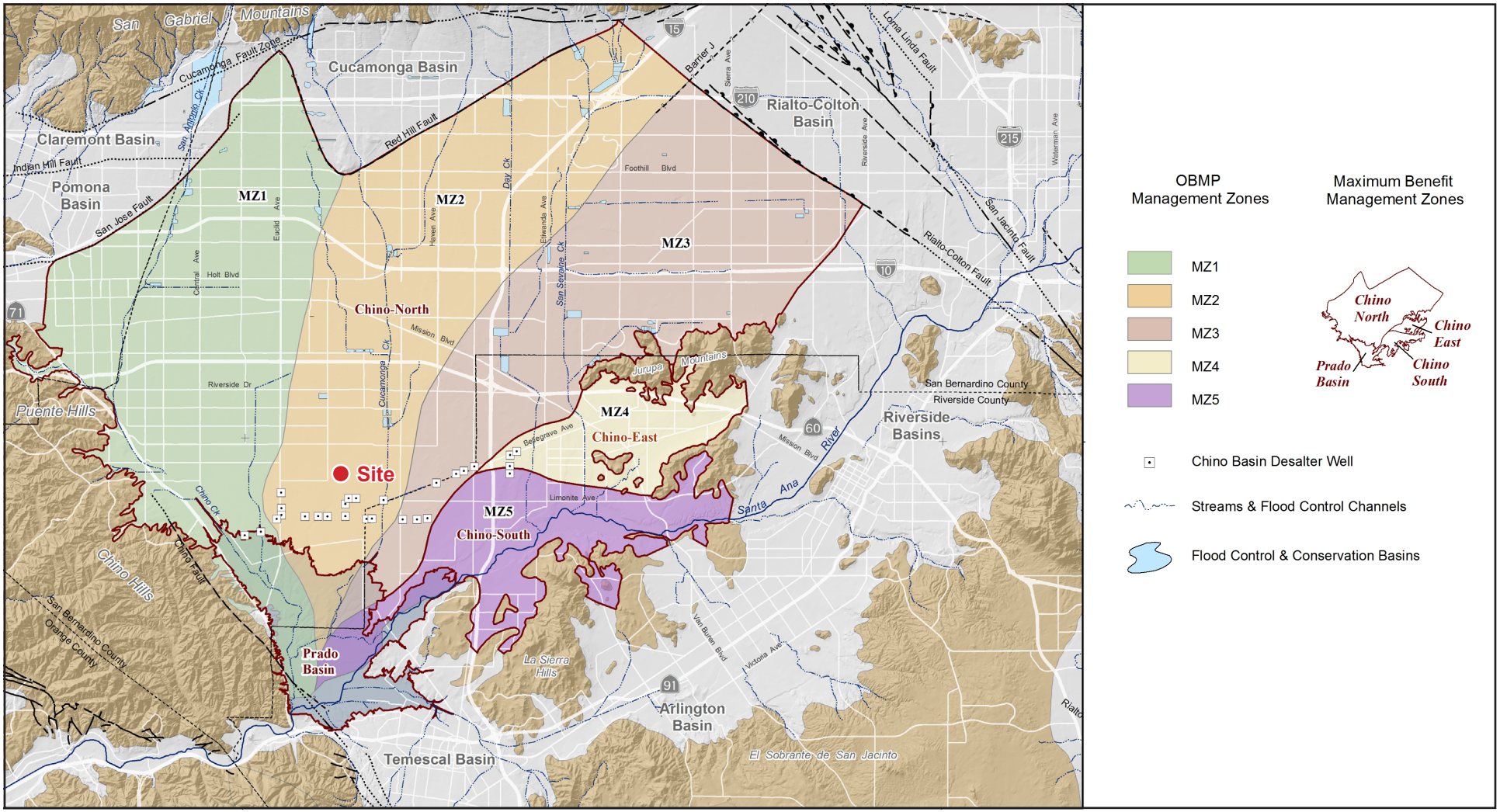
Table 8 – City of Ontario Groundwater Rights Summary

	Current (AFY)	Future (AFY) Groundwater produced (AFY)
Dry Year Storage Program	8,076	8,076
Appropriative Pool	9,229	10,337
Overlying Non-Agricultural Pool	2,627.8	At least 2,911
Land Use Conversions	2,037	16,602
Annual Early Transfer	4,669	At least 6,803
Groundwater Recharge Credits	Unknown	9,600
Fontana Recycled Water Rights	Max. 3,000	At least 3,000
SAWC Groundwater	765	At least 765
Groundwater Storage Accounts	Excess Carry Over Account: 34,820	33,500 to 36,500
	Supplemental Account: 39,359	38,700 to 41,700

Source: Colony Commerce Center East Specific Plan, 2017

[19] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.
[20] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.
[21] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.

Figure 3 - Chino Groundwater Basin Management Zones



Source: Wildermuth International, 2017

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2.5.2 Historic Use of Groundwater

The City owns and operates 20 groundwater wells, of which 18 are currently active and two are on standby. The City's 2012 Potable Water Master Plan includes nine new groundwater wells that will primarily supply the Ontario Ranch area. The amount of groundwater pumped by the City of Ontario from the Chino Basin since 2000 is listed below in Table 9. A map of the location of the groundwater wells and pressure zones is shown on Figure 4, *Ontario Ultimate Water System.*

Table 9 – Historic Groundwater Production

Calendar Year	Groundwater produced (AFY)
2011	20,442
2012	20,226
2013	19,967
2014	20,274
2015	19,544
Average	**20,091**

Source: City of Ontario 2015 UWMP, 2016.

2.5.3 Projected Use of Groundwater

The proposed project will receive water from the City of Ontario, using groundwater extracted from the Chino Basin, treated groundwater from the CDA, recycled water from the IEUA, and imported water from the WFA.

Groundwater from the Chino Basin will be directly pumped by the City of Ontario into its distribution system or by treating the groundwater extracted at Wells 41, 44 and 52 through ion-exchange facilities before pumping it into the distribution system. The City's current well capacity is 51,100 gallons per minute (gpm). When the nine future wells come on line, the capacity of the City's groundwater system will be greater than 72,315 gpm, this includes the nine future wells.

The City of Ontario also purchases treated groundwater from the CDA. The City currently has an entitlement of 5,000 AFY from the CDA. Once the CDA Desalter II expansion is complete, the City will have an additional entitlement of 3,533 AFY for a total of 8,533 AFY.

2.5.4 Sufficiency of Groundwater from Chino Basin

According to the 2015 UWMP, the City's water supply (including conservation measures) will be sufficient to supply all of its needs to residential, commercial, and industrial customers through the year 2040 during normal, single dry, and multiple dry years. The City of Ontario's legal right to pump water in an amount necessary to meet all of its demands has been adjudicated and will ensure the long-term reliability of the groundwater source as the safe yield of the aquifer has been determined.

Approximately two-thirds of the City's water supply is groundwater pumped through its own wells located in the Chino Basin. The construction of Wells 45, 46, and 47, as part of the DYY Storage Program, increases the City's groundwater pumping capacity to meet peak demands. The City also has 76,179 AF of stored water in

the Chino Basin as of 2015 and participates in an ongoing groundwater recharge program, using stormwater, dry-weather runoff, and recycled water, that ensures the safe yield of the Chino Basin is not exceeded. The ongoing expansion of the groundwater desalter program and recycled water program will reduce the City's dependence on groundwater pumping. In addition, the City participates in water conservation efforts through the California Urban Water Conservation Council (CUWCC), adopts ordinances pertaining to water shortage contingency planning, conservation pricing, and various public outreach programs to encourage its customers to reduce their water consumption.[22]

The Cities of Chino, Chino Hills, Ontario, Upland, and the Monte Vista Water District submitted the Water Supply Reliability Certification and supporting documentation to the State Water Resources Control Board in June 2016.[23] This was submitted under the requirements of the State Water Resources Control Board's (SWRCB's) May 18, 2016 Emergency Regulation. The results are summarized in Tables 10 and 11.

Table 10 – Water Supplies Available to the City of Ontario for Water Years 2017-2019

	WY 2017 (AF)	WY 2018 (AF)	WY 2019 (AF)
Water Facilities Authority	13,044	13,448	11,840
Chino Desalter Authority	8,533	8,533	8,533
San Antonio Water Company	545	545	545
Groundwater Rights (Appropriative Pool)	30,137	17,726	17,726
Groundwater Rights (Non-Agricultural Pool)	4,656	2,328	2,328
Recycled Groundwater Recharge[1]	2,684	2,792	2,357

Source: Monte Vista Water District, 2016. Documentation to Support Water Supply Reliability Certification and Data Submission.
AF = Acre Feet
[1]Does not include agreement with the City of Fontana to purchase up to 3,00 AFY of Fontana's recycled water groundwater recharge rights.

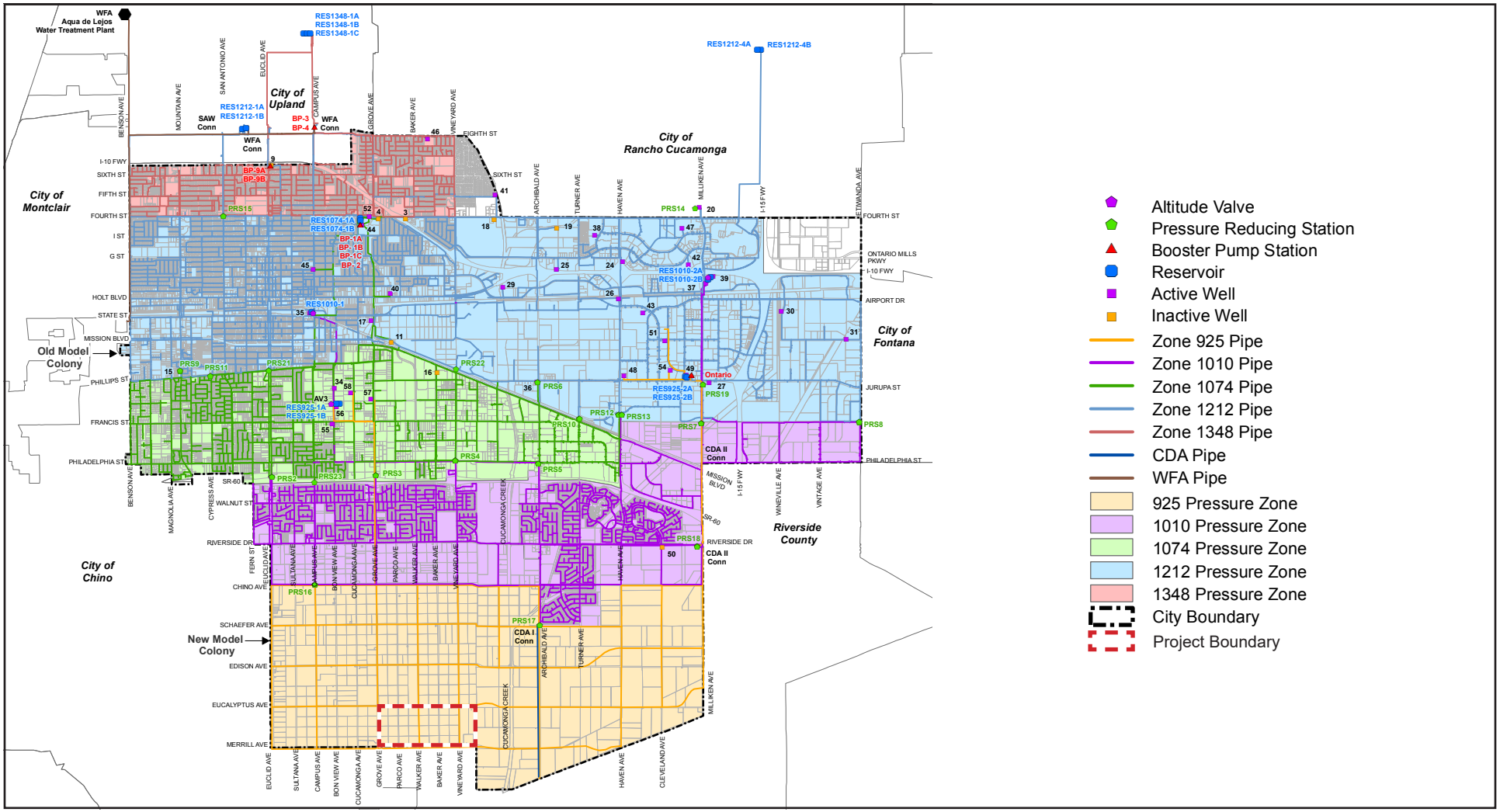
Table 11 – Chino Basin Carryover Water Supplies for City of Ontario WY 2019

	WY 2019 (AF)
Annual Share of Safe Yield	12,664
Projected Annual Demands	35, 809
Projected WY 2018 Supplies	58,036
WY 2018 Excess Supplies	22,227
WY 2019 Carryover Supplies	12,664

Source: Monte Vista Water District, 2016. Documentation to Support Water Supply Reliability Certification and Data Submission.
AF = Acre Feet

[22] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.
[23] Monte Vista Water District, 2016. *Documentation to Support Water Supply Reliability Certification and Data Submission*. Dated June 22, 2016.

Figure 4 - Ontario Ultimate Water System



Source: AKM, 2011

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In addition, as of 2016 the Chino Basin has approximately 237,291 AF of groundwater that is currently stored and available for safe production through existing groundwater production wells. This quantity of additional available supply is not included in the City's total supply projections. The amount of Chino Basin groundwater available for the City of Ontario is shown in Table 12.

Table 12 – Chino Basin Stored Groundwater Available to the City of Ontario

	Local Excess Carry Over Storage (AF)	Local Supplemental Storage (AF)	Total
Appropriative Pool	39,663	36,871	76,534
Non-Agricultural Pool	2,905	--	2,905
Total	**42,568**	**36,781**	**79,349**

Source: Monte Vista Water District, 2016. Documentation to Support Water Supply Reliability Certification and Data Submission.
AF = Acre Feet.

In summary, there are sufficient groundwater supplies available to the City, based on the analysis provided above as well as the programs overseen by the Chino Basin Watermaster. The ongoing efforts by the City to implement water conservation programs and the use of recycled water will further reduce its reliance on groundwater resources.

2.6 WATER SHORTAGE CONTINGENCY PLANNING

To prepare for water shortages, the City adopted Ordinance No. 3027 on September 1, 2015, in response to the Emergency Conservation Regulations mandated by the State Water Resources Control Board. Under this ordinance, the Water Conservation Plan was updated with more stringent prohibitions and penalties. The Water Conservation Plan establishes a voluntary conservation stage that is always in effect and mandatory water shortage stages 1 through 4, which enforce water conservation routines following a water crisis.

Depending on the City's customer's initiative to voluntarily conserve water at times of crisis, the City can determine when and how quickly to implement the mandatory conservation phases. The severity of the water shortage will influence which methods will be implemented. When conservation goals are not met simply through voluntary reduction in water use or when supplies are reduced by 10 percent, Stage 1 prohibitions are implemented. Stage 2 occurs when there is a 10 percent to 20 percent reduction in supplies. A reduction in supplies by more than 20 percent results in Stage 3 prohibitions. Severe water supply interruptions, resulting in a reduction in supplies by 50 percent, caused by earthquakes, wide-spread fires, or other natural disasters, prompt Stage 4 prohibitions. A Stage 4 water shortage will target the implementation of all consumption reduction methods.[24]

2.7 WATER EFFICIENCY STRATEGIES

There are many water efficiency strategies that have been implemented in the City of Ontario that would also reduce water demands for the Merrill Commerce Center Specific Plan. Since the City is located within an inland arid region where approximately 60to70 percent of water is used outdoors, there is a heightened focus on outdoor water use efficiency programs. The City offers outdoor rebates and incentives through various programs, such as: irrigation tune-up program, turf removal programs, landscape evaluations, landscape workshops and smart irrigation controller upgrades.

The City also offers an assortment of indoor rebate programs for residential, commercial, industrial, institutional and customers, such as: high efficiency/ultralow flush toilets, high efficiency clothes washer, waterless urinals, water brooms, pre-rinse nozzles, conductivity controllers, rotating nozzles and weather-based irrigation control.

Furthermore, the City along with other IEUA member agencies implements a Regional Water Use Efficiency Business Plan. The Business Plan references SB X7-7, and the State Water Resources Control Board's Emergency Conservation Regulations as the legislative drivers that help guide the development of water reduction goals. The Business Plan describes in detail how the region, and the City, will achieve the water reduction goals. Below is a summary of how the City will achieve the water reduction goals.

- Water Use Efficiency Active Programs – offers customers incentives/rebates through a portfolio of indoor and outdoor programs in order to use water efficiently

[24] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.

- Water Use Efficiency Passive Policy Initiative – water savings would result from the implementation of current and future building code standards, plumbing code standards and landscape ordinances

- Recycled Water – the continued expansion of recycled water use will reduce demands for potable water supply[25]

2.8 SUMMARY

A Water Supply Assessment (WSA) was prepared to assess the water demand and supply conditions with implementation of the proposed project. As shown in Table 4, the total domestic water demand for the proposed project is estimated to be 509,100 gal/day (570.3 AFY). The total recycled water demand is estimated to be 373,277 gal/day (418 AFY). The total water demand would be 882,377 gal/day or 988 AFY.

According to the City's UWMP, the City has adequate supplies to serve 100 percent of its customers during normal, dry year, and multiple dry year demand through 2040 accounting for projected population increases and corresponding increases in water demand. Projected water demand for the proposed project was included in the UWMP 2015 projections and was based on the 2010 General Plan land use designations. The 2010 General Plan land use designations for the project site were general commercial, office commercial, and business park land uses. The proposed project would consist of high-cube fulfillment center warehouses and business park land uses. The projected water demand for the proposed project is 73 percent of the water demand for the land use that was accounted for in the 2015 UWMP. Therefore, implementation of the proposed project will not obstruct the City's ability to meet water demands of its customers in normal, single-dry, and multiple-dry years.

This WSA concludes that the City will have sufficient water supplies available during normal, single dry, and multiple dry years through the year 2040 to meet all projected water demands associated with its existing and future customers, including the proposed project. In the unlikely event of a water shortage, implementation of the City's Water Conservation Plan and water efficiency strategies would ensure that sufficient water supplies were available to serve its customers, including the project and existing and future users.

[25] City of Ontario, 2016. 2015 *Urban Water Management Plan*. Prepared by Ontario Municipal Utilities Company.